

REMARKS

Claims 1-5, 7, 8, and 11-13 are presented for further examination. Claims 1, 3, and 4 have been amended.

In the Office Action mailed November 3, 2003, the Examiner objected to the drawings because claim 4 appeared to disclose that the signal sent from the regulator to the control unit, which was erroneously shown as being sent to the alternator in Figure 5. Claims 1-5, 7, 8, and 11-13 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Remarks accompanying this rejection state that in claim 1, “The claim may imply that the control signal [sic] receives a signal directly from the alternator...,” and that “There is no mention of a device directly sending the signal (e.g., voltage regulator) to the control unit....” The remarks further question in claim 3 to what device is the voltage regulator sending the signal to, and in claim 4 the remarks state that the control unit is disclosed to receive a regulated voltage signal but the figures show the signal outputted from the alternator back to the voltage regulator and is never sent to the control unit 14.

Turning to the merits, claims 1-4, 7, 11, and 12 were rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama et al. in view of Kohl et al. and Swanson et al. Remarks accompanying this rejection state that neither Maruyama et al. nor Kohl et al. disclose explicitly that the signal from the alternator may be sent to a regulator and then to a control unit, and that Swanson et al. teaches it is “well known in the art to use a phase signal from an alternator 180 and sent [sic] that signal to a regulator 150 and in turn supply a regulated signal to a control unit 130 (see Figure 1). Claims 5, 8, and 13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Maruyama et al., Kohl et al., and Swanson et al. as applied to claims 1, 2, and 12 above and further in view of Iwatani et al.

Applicants respectfully disagree with the bases for the rejections and request reconsideration and further examination of the claims.

Section 112 Rejections

With respect to claim 1, the Examiner stated that “The claim may imply that the control signal [sic] receives a signal directly from the alternator since it is disclosed that the

control unit is able to receive a regulated voltage signal from the alternator without receiving a phase signal from the alternator. Respectfully, there is no mention of a *device* directly sending the signal (*e.g.*, voltage regulator) to the control unit, instead of the alternator being mentioned [sic] to send the signal to the control unit.”

In order to clarify claim 1, applicants have amended line 6 thereof to recite the control unit adapted to receive “the system-regulated voltage signal from the alternator without receiving a phase signal from the alternator....” It is correct that there is no mention of any device that sends a signal (*e.g.*, voltage regulator) to the control unit because no signal is sent from the voltage regulator to the control unit. Rather, as set forth in the specification on page 5, lines 7-9, the voltage regulator 13 has a first terminal TR1 connected to a first terminal TC1 of a control unit 14 “and arranged to receive a phase signal PH.” Thus, the specification clearly states that the voltage regulator receives the phase signal from the control unit 14. At no time does the voltage regulator send a signal to the control unit 14. Therefore, claim 1 is correct in its recitation.

In the remarks, the Examiner further states that in claim 3, “To what device is the voltage regulator sending the signal to?” Applicants respectfully direct the Examiner’s attention to page 65 lines 14-17 wherein it recites the voltage regulator 13 having “a fourth terminal TR4 connected to a fourth terminal TA4 of the alternator 11 and arranged to deliver a regulation signal DF.” Thus, the specification clearly shows that the voltage regulator 13 delivers a regulation signal DF from output terminal TR4 to an input terminal TA4 of the alternator 11. Therefore, applicants respectfully submit that claim 3 is correct in its recitation.

The Examiner further questions the language of claim 4, which appears to disclose “that the control unit receives a regulated voltage signal, but from Figure 5, the signal is sent from the regulator 13 to the alternator 11, not to the control unit 14.” Applicants again respectfully direct the Examiner’s attention to the specification at page 5, lines 9-20, which states that the control unit 14 receives the regulated voltage A+ at an input terminal TC2. In addition, the regulated voltage A+ is also received at the voltage regulator at terminal TR3. In response thereto, the electronic control unit 14 transmits a phase signal PH from terminal TC1 to the

voltage regulator at terminal TR1. In response thereto, the voltage regulator 13 transmits a regulation signal DF from terminal TR4 to terminal TA4 on the alternator 11.

In view of the clear teaching of the specification, applicants respectfully submit that the claims as worded are in accordance with the figures and the specification. In order to more clearly define the invention, claim 3 has been amended to recite "the control unit arranged to deliver said phase signal to said voltage regulator." Consequently, applicants respectfully submit that all of the claims are in accordance with the requirements of 35 U.S.C. § 112, second paragraph.

Rejection Under 35 U.S.C. § 103(a) of Claims 1-4, 7, 11, and 12

The Examiner has rejected the above-referenced claims as obvious over two references of record, Maruyama et al. and Kohl et al., and further in view of a new reference, U.S. Patent No. 6,003,304, Swanson et al. In remarks accompanying this rejection, the Examiner states that Swanson teaches that it is well known in the art "to use a phase signal from an alternator 180 and sent [sic] that signal to a regulator 150 and in turn supply a regulated signal to a control unit 130 (see Figure 1)."

Having the alternator send a phase signal to the voltage regulator is precisely the construction the present invention seeks to avoid. As is clear from the disclosed and claimed embodiments of the invention, the present invention does not utilize any phase signal from the alternator because of the problems inherent with this configuration, as discussed in the Background of the Invention.

As the Examiner notes, Swanson et al. teaches the alternator 180 sending a phase signal P (185) to the voltage regulator 150 (see Swanson et al., column 4, lines 42-49; claim 3, at column 7, lines 42-46). Applicants further note that the Kohl et al. reference teaches at column 2, lines 14-31 that the control stage 25 has a signal processing circuit that picks up a phase signal from the generator that in turn is processed for controlling the generator. None of the cited references, taken alone or in any combination thereof, teach or suggest the claimed combination. Thus, any combination of Maruyama et al., Kohl et al., and Swanson et al. would clearly be inapposite to the present invention.

In view of the clarifications to the claims discussed above, and in view of the contrary teachings of Kohl et al. and Swanson et al., applicants respectfully submit that all of the claims in this application are clearly in condition for allowance. More particularly, claim 1 recites the control unit adapted to receive the system-regulated voltage signal from the alternator *without receiving a phase signal from the alternator*. Independent claim 11 is directed to a method of loop regulating a voltage wherein the system voltage is regulated "without using a phase signal from the alternator." Thus, both the independent claims and all claims depending therefrom are clearly in condition for allowance.

In the event the Examiner finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact applicants' undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,
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